

CLAIMS

What is claimed is:

- 1 1. A computer-implemented method for buffering data in a multithreaded
2 environment, comprising:
3 generating log data in response to a request for accessing a resource;
4 identifying a buffer management structure that is associated with a plurality of
5 data buffers;
6 reading a last buffer index value that is associated with the buffer management
7 structure, wherein said last buffer index value provides information that
8 identifies a last data buffer that was last used for buffering data; and
9 selecting a data buffer that is associated with said buffer management structure
10 based on said last buffer index value.
- 1 2. The method of Claim 1, further comprising:
2 maintaining a data structure that is associated with said plurality of data buffers,
3 wherein the data structure is associated with a group of flags that provide
4 an indication as to whether an entry in said data structure is likely to be
5 associated with a data buffer that is available for storing said log data; and
6 prior to writing said log data, reading a flag associated with a particular data
7 structure entry to determine whether said particular data structure entry is
8 likely associated with a data buffer that is available for storing said log
9 data.
- 1 3. The method of Claim 1, further comprising:
2 receiving a connection request from a client;
3 assigning a thread of execution to process said connection request; and
4 wherein the step of identifying a buffer management structure further comprises
5 the step of said thread of execution selecting said buffer management
6 structure from a plurality of buffer management structures, wherein said

7 plurality of buffer management structures are each associated with a set of
8 data buffers that are used for buffering data to a physical memory unit.

1 4. The method of Claim 1, wherein:
2 said resource represents one or more sets of content that are associated with a
3 network server; and
4 the step of identifying a buffer management structure comprises the step of
5 selecting said buffer management structure based on one or more
6 addresses in which said one or more sets of content are stored on said
7 network server.

1 5. The method of Claim 1, wherein:
2 prior to receiving said request for accessing said resource, said last buffer index
3 value identifying a prior data buffer that is associated with said buffer
4 management structure; and wherein,
5 the step of reading a last buffer index value further comprises the steps of,
6 updating said last buffer index value associated with said buffer
7 management structure; and
8 after updating said last buffer index value, selecting said data buffer based
9 on said last buffer index value.

1 6. The method of Claim 5, wherein the step of updating said last buffer index value
2 includes the step of incrementing said last buffer index value, wherein the step of
3 incrementing said last buffer index value causes said last buffer index value to
4 reference said data buffer.

1 7. The method of Claim 1, further comprising the step of writing said log data into
2 said data buffer.

- 1 8. The method of Claim 1, further comprising:
2 reading a flag value that is associated with said data buffer, wherein said flag
3 value provides an indicator as to whether said data buffer is likely
4 available for storing said log data; and
5 attempting to write said log data to said data buffer if said flag value indicates
6 that said data buffer is likely available for storing said log data.
- 1 9. The method of Claim 8, wherein the step of attempting to write said log data to
2 said data buffer comprises:
3 requesting a mutually exclusive lock on said data buffer; and
4 storing said log data in said data buffer only after acquiring said mutually
5 exclusive lock on said data buffer.
- 1 10. The method of Claim 1, further comprising:
2 maintaining said plurality of data buffers as an array of available buffers; and
3 in response to detecting that a particular data buffer contains a particular limited
4 amount of free data space, removing said particular data buffer from said
5 array of available buffers.
- 1 11. The method of Claim 10, wherein the step of removing said particular data buffer
2 from said array of available buffers further comprises linking said particular data
3 buffer into a list of ready-to-write data buffers.
- 1 12. The method of Claim 11, further comprising:
2 removing said particular data buffer from said array of available buffers; and
3 storing on a non-volatile storage unit information contained in said particular data
4 buffer.

1 13. The method of Claim 1, further comprising:
2 maintaining said plurality of data buffers as an array of available buffers; and
3 wherein the step of selecting a data buffer that is associated with said buffer
4 management structure comprises the step of:
5 in response to determining that no data buffer is available in said array of
6 available buffers for storing said log data, requesting a free data
7 buffer from a global list of free data buffers.

1 14. A computer-implemented method for buffering data in a multithreaded
2 environment, comprising:
3 generating log data in response to a request for accessing a resource;
4 identifying a data management structure that is associated with a plurality of data
5 buffers;
6 reading a reference value that is associated with the data management structure,
7 wherein said reference value provides information that identifies a
8 particular data buffer that is likely available for buffering data; and
9 selecting said particular data buffer that is associated with said data management
10 structure based on said reference value.

1 15. The method of Claim 14, further comprising:
2 maintaining a buffer structure that is associated with said plurality of data buffers,
3 wherein said buffer structure is associated with a group of flags that
4 provide an indication as to whether an entry in said buffer structure is
5 likely to be associated with a data buffer that is available for storing said
6 log data; and
7 prior to writing said log data, reading a flag associated with a particular entry to
8 determine whether said particular entry is likely associated with a data
9 buffer that is available for storing said log data.

1 16. The method of Claim 14, further comprising:
2 reading a flag value that is associated with said data buffer, wherein said flag
3 value provides an indicator as to whether said data buffer is likely
4 available for storing said log data; and
5 attempting to write said log data to said data buffer if said flag value indicates
6 that said data buffer is likely available for storing said log data.

1 17. A computer-readable medium carrying one or more sequences of instructions for
2 buffering data in a multithreaded environment, wherein execution of the one or
3 more sequences of instructions by one or more processors causes the one or more
4 processors to perform the steps of:
5 generating log data in response to a request for accessing a resource;
6 identifying a buffer management structure that is associated with a plurality of
7 data buffers;
8 reading a last buffer index value that is associated with the buffer management
9 structure, wherein said last buffer index value provides information that
10 identifies a last data buffer that was last used for buffering data; and
11 selecting a data buffer that is associated with said buffer management structure
12 based on said last buffer index value.

1 18. The computer-readable medium of Claim 17, further comprising instructions for
2 performing the steps of:
3 maintaining a data structure that is associated with said plurality of data buffers,
4 wherein the data structure is associated with a group of flags that provide
5 an indication as to whether an entry in said data structure is likely to be
6 associated with a data buffer that is available for storing said log data; and
7 prior to writing said log data, reading a flag associated with a particular data
8 structure entry to determine whether said particular data structure entry is
9 likely associated with a data buffer that is available for storing said log
10 data.

1 19. The computer-readable medium of Claim 17, further comprising instructions for
2 performing the steps of:
3 receiving a connection request from a client;
4 assigning a thread of execution to process said connection request; and
5 wherein the step of identifying a buffer management structure further comprises
6 the step of said thread of execution selecting said buffer management
7 structure from a plurality of buffer management structures, wherein said
8 plurality of buffer management structures are each associated with a set of
9 data buffers that are used for buffering data to a physical memory unit.

1 20. The computer-readable medium of Claim 17, wherein:
2 said resource represents one or more sets of content that are associated with a
3 network server; and
4 the step of identifying a buffer management structure comprises the step of
5 selecting said buffer management structure based on one or more
6 addresses in which said one or more sets of content are stored on said
7 network server.

1 21. The computer-readable medium of Claim 17, wherein:
2 prior to receiving said request for accessing said resource, said last buffer index
3 value identifying a prior data buffer that is associated with said buffer
4 management structure; and wherein,
5 the step of reading a last buffer index value further comprises the steps of,
6 updating said last buffer index value associated with said buffer
7 management structure; and
8 after updating said last buffer index value, selecting said data buffer based
9 on said last buffer index value.

1 22. The computer-readable medium of Claim 21, wherein the step of updating said
2 last buffer index value includes the step of incrementing said last buffer index

3 value, wherein the step of incrementing said last buffer index value causes said
4 last buffer index value to reference said data buffer.

1 23. The computer-readable medium of Claim 17, further comprising instructions for
2 performing the step of writing said log data into said data buffer.

1 24. The computer-readable medium of Claim 17, further comprising instructions for
2 performing the steps of:
3 reading a flag value that is associated with said data buffer, wherein said flag
4 value provides an indicator as to whether said data buffer is likely
5 available for storing said log data; and
6 attempting to write said log data to said data buffer if said flag value indicates
7 that said data buffer is likely available for storing said log data.

1 25. The computer-readable medium of Claim 24, wherein the step of attempting to
2 write said log data to said data buffer comprises:
3 requesting a mutually exclusive lock on said data buffer; and
4 storing said log data in said data buffer only after acquiring said mutually
5 exclusive lock on said data buffer.

1 26. The computer-readable medium of Claim 17, further comprising instructions for
2 performing the steps of:
3 maintaining said plurality of data buffers as an array of available buffers; and
4 in response to detecting that a particular data buffer contains a particular limited
5 amount of free data space, removing said particular data buffer from said
6 array of available buffers.

1 27. The computer-readable medium of Claim 26, wherein the step of removing said
2 particular data buffer from said array of available buffers further comprises
3 linking said particular data buffer into a list of ready-to-write data buffers.

1 28. The computer-readable medium of Claim 27, further comprising instructions for
2 performing the steps of:
3 removing said particular data buffer from said array of available buffers; and
4 storing on a non-volatile storage unit information contained in said particular data
5 buffer.

1 29. The computer-readable medium of Claim 17, further comprising instructions for
2 performing the steps of:
3 maintaining said plurality of data buffers as an array of available buffers; and
4 wherein the step of selecting a data buffer that is associated with said buffer
5 management structure comprises the step of:
6 in response to determining that no data buffer is available in said array of
7 available buffers for storing said log data, requesting a free data
8 buffer from a global list of free data buffers.

1 30. A computer-readable medium carrying one or more sequences of instructions for
2 buffering data in a multithreaded environment, wherein execution of the one or
3 more sequences of instructions by one or more processors causes the one or more
4 processors to perform the steps of:
5 generating log data in response to a request for accessing a resource;
6 identifying a data management structure that is associated with a plurality of data
7 buffers;
8 reading a reference value that is associated with the data management structure,
9 wherein said reference value provides information that identifies a
10 particular data buffer that is likely available for buffering data; and
11 selecting said particular data buffer that is associated with said data management
12 structure based on said reference value.

1 31. The computer-readable medium of Claim 30, further comprising instructions for
2 performing the steps of:
3 maintaining a buffer structure that is associated with said plurality of data buffers,
4 wherein said buffer structure is associated with a group of flags that
5 provide an indication as to whether an entry in said buffer structure is
6 likely to be associated with a data buffer that is available for storing said
7 log data; and
8 prior to writing said log data, reading a flag associated with a particular entry to
9 determine whether said particular entry is likely associated with a data
10 buffer that is available for storing said log data.

1 32. The computer-readable medium of Claim 30, further comprising instructions for
2 performing the steps of:
3 reading a flag value that is associated with said data buffer, wherein said flag
4 value provides an indicator as to whether said data buffer is likely
5 available for storing said log data; and
6 attempting to write said log data to said data buffer if said flag value indicates
7 that said data buffer is likely available for storing said log data.

1 33. A computer system, comprising:
2 means for generating log data in response to a request for accessing a resource;
3 means for identifying a data management structure that is associated with a
4 plurality of data buffers;
5 means for reading a reference value that is associated with the data management
6 structure, wherein said reference value provides information that identifies
7 a particular data buffer that is likely available for buffering data; and
8 means for selecting said particular data buffer that is associated with said data
9 management structure based on said reference value.

1 34. The computer system of Claim 33, further comprising:
2 means for maintaining a buffer structure that is associated with said plurality of
3 data buffers, wherein said buffer structure is associated with a group of
4 flags that provide an indication as to whether an entry in said buffer
5 structure is likely to be associated with a data buffer that is available for
6 storing said log data; and
7 means for prior to writing said log data, reading a flag associated with a particular
8 entry to determine whether said particular entry is likely associated with a
9 data buffer that is available for storing said log data.

1 35. The computer system of Claim 33, further comprising:
2 means for reading a flag value that is associated with said data buffer, wherein
3 said flag value provides an indicator as to whether said data buffer is
4 likely available for storing said log data; and
5 means for attempting to write said log data to said data buffer if said flag value
6 indicates that said data buffer is likely available for storing said log data.